

Planck results and neutrino physics: constraints and tensions

Monday, 9 September 2013 14:00 (20 minutes)

Observations of the cosmic microwave background (CMB) have the potential to constrain the properties of relic neutrinos, and possibly of additional light relic particles in the Universe. In my talk I will present the constraints on the mass of the three Standard Model neutrinos and on the density of massless relics that can be obtained using the recent observations of the CMB temperature anisotropies from the Planck satellite, in combination with the WMAP polarization (WP) data. I will also show how these constraints change when the Planck+WP dataset is augmented by other data, like Planck's own estimate of the lensing potential, observations of the CMB at small scales, and other astrophysical probes. Finally, I will discuss some of the "tensions" involving the value of parameters, like the lensing amplitude A_{lens} and the Hubble constant H_0 , as estimated from different data combinations, with a particular focus on their effect on neutrino-related quantities.

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Session Classification: Cosmology I

Track Classification: Cosmology